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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,074	06/24/2003	Tetsuo Takeshima	36856.1090	1234
7590	04/16/2004		EXAMINER	
KEATING & BENNETT LLP Suite 312 10400 Eaton Place Fairfax, VA 22030			BUDD, MARK OSBORNE	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 04/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.	10/602,074	
Examiner	TAKESHIMA, TETSUO	
Mark Budd	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 02 June 2003.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 9-20 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 9,10 and 12-20 is/are rejected.

7) Claim(s) 11 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)                    4) Interview Summary (PTO-413)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)                    Paper No(s)/Mail Date. \_\_\_\_\_.  
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.                    5) Notice of Informal Patent Application (PTO-152)  
6) Other: \_\_\_\_\_.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9, 10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angona in view of Sakamoto or Hayashi.

Angona teaches a piezoelectric multi layer laminated bender producing acoustic waves. The laminated body is encapsulated in a potting compound (resin). Angona does not explicitly teach the poling-directions for the piezo elements or a specific Youngs Modulus for the resin. Angona does not explicitly teach the poling-directions for the piezo elements or a specific Youngs Modulus for this resin. However, each of Hayashi (figs. 3 and 6) and Sakamoto (figs. 3 and 6) and Sakamoto (figs. 1, 2 and 4) teach piezoelectric bimorph benders can be poled in the same direction to produce the desired bending. It has long bend held that optimization of a known device (e.g. thru routine experimentation) for a specific application is within the skill expected of the routineer. Thus to select same direction poling and a specific Yangs modulus for the coating would have been within the skill expected of the routineer. The specific electrode lead architecture of claims 6-8 would occur to the skilled artisan as both convenient and necessary depending on where the electrical connections and working surfaces.

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Claims 8 is rejected under 35 USC 103(a) as being unpatentable over Angona in view of Sakamoto or Hayashi as applied to claim 1 above, and further in view of Huguenin or Furbacher.

This claims adds that notches are provided in the protection layer to expose the connection terminals. Each of Furgbacher (Fig. 3) and Huguenin (figs. 1-6 and 11) explicitly teach such an accommodation to allow external connections to be made to the transducer. Thus for at least this reason it would have been obvious to one of ordinary skill in the art to provide terminal cut outs in Angona.

Claims 11 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The above action replaces the previous office action. The examiner apologizes for not noticing the preliminary amendment filed on 6-2-03.

Budd/ds

04/12/04

MARK U. BUDD  
PRIMARY EXAMINER  
ART UNIT 216